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ABSTRACT

This report describes the problems related to control of or variety in curriculum in studies of teaching and the procedures used in one phase of the Beginning Teacher Evaluation Study to control to some extent the curriculum in reading and mathematics. The major focus of the document is the plan for further study of aspects of Experimental Teaching Units designed to provide varying degrees of control of curriculum to facilitate research on teaching. (Author)

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BTES

BEGINNING TEACHER EVALUATION STUDY

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TECHNICAL NOTE V-2

Plans for Further Development of Experimental Teaching Units

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March, 1976

PLANS FOR FURTHER DEVELOPMENT

OF EXPERIMENTAL TEACHING UNITS

Overview

In Phase III-A of the Beginning Teacher Evaluation Study, an important research tool was the Experimental Teaching Unit (ETU). The purpose of the ETU was to provide a teaching situation that was comparable across classes. Teachers were compared on the style and effectiveness with which they taught toward a standard set of objectives in a two-week teaching unit.

The problem of control over the content of instruction is an important and enduring one in research on teaching. In order to make a "clean" test of the relationship between instructional variables and achievement outcomes, the same achievement outcomes must be appropriate for all students in the sample. This problem is as relevant to Phase III-B research as it was in the Known Sample studies.

Feedback on the ETU's as used to select the Known Sample and further development of research concepts by the BTES staff have led us to consider alternative strategies for content control. One possibility is what might be called an "objectives only" ETU. The ETU's used in Known Sample selection provided the teacher with a variety of sample materials and suggested activities and required that she spend a fixed amount of time per day on the unit. These added constraints may or may not be useful. An alternative is to ask the teacher to spend some time working on a particular objective, but not to provide any materials or set any fixed requirements of time. In this case only the objectives of instruction are specified hence the term "objectives only" ETU. This kind of procedure was incorporated in the Instructional Time Study carried out in the

fall of 1975 as part of Phase III-A Continuation.

We propose to examine in detail the objectives-only ETU situation. The data from the Instructional Time Study will be analyzed and interpreted from the point of view of the objectives-only ETU technique. Results using this procedure will be compared with results on the Known Sample ETU's. The strengths and weaknesses of the objectives-only ETU will be evaluated in terms of future research needs. This analysis and evaluation will be reported in Technical Note V-3, "Revision of ETU's", scheduled for completion May 31, 1976.

Why Use an ETU? - The Value of Content Control

An important problem in research on teaching is control over the content of instruction. In the typical research plan, teachers are compared on various aspects of their instructional technique. Differences in instructional technique are related to differences in student achievement, in a search for those teaching behaviors associated with superior achievement. This research plan assumes that measures of student achievement are comparable across classes. This assumption is valid only if the content of instruction is the same for all students.

The "experimental teaching unit" (ETU) attempts to control content by asking all teachers to work on the same objectives over a particular interval of time. Tests tied to these objectives are then appropriate measures of achievement for all students.

Content comparability is also important in the "ALT" model of the instructional process. As outlined in the proposal for Phase III-B, the

Far West Laboratory staff conceptualizes instruction in terms of a proximal measure of classroom learning called "academic learning time" (ALT). Learning can take place only when the student is actively engaged in a task of intermediate difficulty relevant to an academic objective. Classroom time when these conditions are met is labeled as ALT. The observed amount of ALT is a measure of the amount of learning. It should correlate with pretest-posttest measures of achievement gain. To verify this relationship, one would correlate ALT in a content area with achievement gain in that area. The need for a content match across classes is still present, but the amount of time spent in an area can and should vary across classes. What one wants to do is measure achievement in an area where instruction usually takes place. One can ensure that all classes will contribute to the relationship by asking each teacher to do some instruction in the area, but leave the amount of time open.

ETU's for Known-Sample Selection

During Phase III-A of BTES, ETU's were developed for use in the selection of a Known Sample of teachers. Four units were developed, for grade 2 and grade 5 reading and mathematics Each unit covered a two-week interval, with a pretest and posttest on the unit's objectives. Teachers were asked to spend a fixed amount of time each day on the unit. They could select particular objectives to work on with particular students.

These units provided a large variety of sample materials and suggested activities for teaching the unit's objectives. The materials were purposely assembled without explicit organization, so that each teacher would be encouraged to adapt, select, and structure the unit for his/her

particular situation. Teachers were allowed to use our materials and/or anything else they had available.

Some teachers and reviewers objected to this type of curriculum package. They said that the objectives and materials were unfamiliar to the teacher and that the task of organizing materials presented in this format was not representative of typical teaching behavior. For these critics, the objectives-only ETU has the advantage of allowing the teacher to behave in a more normal manner.

Another concern about the Known Sample ETU's was the number of objectives covered. A set of related objectives was included in each two week unit, so that some section of the unit would be appropriate and provide opportunity for growth for each student across a wide range of entering ability levels. This resulted in a larger number of objectives per unit than some teachers felt comfortable with in the two-week time interval. An important alternative strategy to study is a unit which focuses effort on a smaller area.

The "Objectives-Only" ETU in the Instructional Time Study

During Phase III-A Continuation, a small-scale observation study is being run to examine the relationship between time spent in different areas of instruction and achievement in those areas. As part of this study, each of six grade two teachers has been observed full time for two weeks. The observation focused on several specific content areas in reading and math as well as a number of more general areas. In reading, the specific areas were compound words and long vowel decoding. In mathematics, the focus was on place value concepts. In each specific area, an achievement test

was given at the beginning and end of the two week period, to measure learning during the observation period. These specific area tests parallel measures included in the full BTES student battery administered in all classes in September and in December. During the observation period, teachers were told which specific areas were being studied. They were asked to direct some instruction to these areas during the observation if they felt it was appropriate for their students.

This focus on specific objectives during the observation period constitutes an "objectives only" ETU. The procedure is comparable in many ways to the Known Sample situation. The two-week time period is constant. The time of year is comparable. In reading, there is some direct content overlap. One objective in the Known Sample ETU covered compound words. The procedures differ in terms of materials (offered or not), time limits (fixed for unit or not), and number of objectives (a moderate range versus few and focused).

Proposed Analysis

On the basis of the concerns and opportunities outlined above, we propose a comparison of these two ETU techniques in order to gain insight on content control procedures for future research. Four aspects of the comparison are of particular interest:

1. How much achievement gain is shown over the two weeks? In order to relate instructional variables to achievement, we need first to measure gains in achievement. Particular content areas and objectives can be evaluated in terms of their amenability to a two-week treatment. Aspects of the ETU procedure (number of objectives, specifity of time limitations) may also influence amount of gain.

2. How is gain over two weeks related to gain over a longer period?

   In the Known Sample situation we can compare ETU gain to year-long achievement. In the Instructional Time Study we can compare two-week gain to eight-week gain. One variable of interest is the amount of gain over different time periods. Another is the consistency of teacher rankings across time samples. Both variables need to be evaluated in terms of the completeness and reliability of our knowledge about intervening treatments and how they produce achievement.

3. How much time do teachers spend on ETU objectives?

   In the Known Sample unit total time was fixed but time could be distributed differentially to objectives in the unit. In the Instructional Time Study the objective focus was more narrow but no time restrictions were imposed. In future research we may be particularly interested in the distribution of instructional time across classes. We can now examine the distributions obtained using these two different procedures.

4. How do teachers react to the research procedure?

   Research on teaching depends on the good will and cooperation of volunteer teachers. Some demands on the teacher's time and attention are inevitable during a research study, but it is important to minimize factors perceived negatively by teachers. We can compare teacher reactions to these two ETU procedures, and consider possible modification of future techniques.

The results and conclusions provided by these analyses will be reported in Technical Note V-3, "Revision of ETU's." This Technical Note is scheduled for completion May 31, 1976.

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